Blood parasites of ducks in the British Isles

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Summary

243 birds of 16 species of Anatidae have been examined for blood parasites. Microfilariae were found in Teal, Smew and Pintail and Leucocytozoon in Scaup, Wigeon, Pochard and Teal. Parasites in the Smew, Pochard and Wigeon are considered new host records. Attempts at transmission of the Teal filaria were unsuccessful.

During 1964 and 1965 the blood of a large number of wild birds has been examined as part of a survey for avian microfilariae. In the course of these examinations, the presence of other blood parasites has been noted and this report records those found in the family Anatidae.

The birds were obtained from Borough Fen Decoy, Peakirk, Northants and Benington Marsh near Boston, Lincs. Dr. James Harrison kindly provided lung blood smears of birds collected or found dead in Kent or elsewhere. The majority of the samples were collected during the winter months, a single blood smear being taken from the wing vein of the living birds prior to release after ringing. Slides were stained with Giemsa stain and examined at both high and low magnifications for parasites.

Tables I and II show the results for living and dead birds respectively. It should be noted that the proportion of Teal found infected with microfilariae was much higher when lung blood was examined than when venous blood was examined. In mammalian and some avian filarial infections the microfilariae are present in the peripheral blood only at certain times during the day or night, usually coincident with the maximum activity of the arthropod vector, a phenomenon known as periodicity. During the periods when they are absent from the peripheral blood they accumulate in the vessels of the lungs and it is therefore to be expected that more infected birds will be discovered by examination of this blood. In addition to this diurnal periodicity there may also be a seasonal periodicity. Several authors have noted a lower incidence of detectable parasites during the winter months than in the summer, apparently correlated with the sexual cycle of the host. These phenomena make the incidence of blood parasites in a population difficult to estimate and a survey such as the one here reported serves merely to establish the presence or absence of any parasite in a host species.

There have been few studies on the blood parasites of British birds and our knowledge is largely surmised from foreign records of birds on the British list. Table III lists those parasites so far recorded from British Anatidae. Most of the records in this paper are thought to be new additions to the British Fauna and the presence of microfilariae in Smew, and Leucocytozoon in Wigeon and Pochard are new host records.

Morphologically, all of the Leucocytozoon found resemble *Leucocytozoon simondi* Mathis and Leger, a common parasite of the Teal which has gametocytes in

Table I. Living birds examined for blood parasites.

Species	*Number examined*	*Number positive for Micro-filaria*	*Leucocy-tozoon*
Mallard	37	0	0
Teal	109	6	–
	65	–	7
Wigeon	10	0	3
Pintail	3	0	0
Shoveler	26	0	0
Mandarin Duck	1	0	0
Scaup	1	0	1
Pochard	5	0	1
Tufted Duck	11	0	0
Eider	2	0	0
Shelduck	2	0	0
Brent Goose	3	0	0
Mute Swan	2	0	0
	212	6	–
	168	–	12

Table II. Lung blood smears examined for microfilaria.

Species	*Number examined*	*Number positive*
Mallard	7	0
Teal	15	4
Wigeon	1	0
Pintail	2	1
Tufted Duck	1	0
Shelduck	1	0
Garganey	1	0
Smew	2	1
White-fronted Goose	1	0
	31	6

Table III. Blood parasites recorded from Anatidae on the British list.

	Plasmodium	*Haemoproteus*	*Leucocytozoon*	*Trypanosoma*	*Microfilaria*
Mallard	+	+	+		+
Teal			+		+
Wigeon			+*		
Pintail	+	+	+	+	+
Shoveler	+(1)	+	+		+
Mandarin	+		+		+
Scaup			+		
Pochard			+*		
Goldeneye			+		
Long-tailed Duck		+	+		
Common Scoter					+
Red-breasted Merganser			+		+
Smew					+*
Greylag Goose			+		+
White-fronted Goose			+		
Canada Goose	+(2)	+	+	+	+
Mute Swan					+(3)
Bewick's Swan					+(4)

*This study
(1) Manwell and Kuntz (1965);
(2) Herman (1965);
(3) Boughton (1965);
(4) Rhizikov (1959).
All other records from Lapage (1961).

elongate host celis. There are however slight differences in size. Microfilariae have previously been reported from the Teal in Scotland (Anderson, 1954). Those found in the present study are of approximately the same size in all three host species and may represent a single new species of parasite. A detailed description of all the parasites found will be published elsewhere.

Several of the infected Teal have been studied in the laboratory and attempts have been made to transmit the parasite using both wild-caught and laboratory-bred blood-sucking insects. No success has as yet been achieved with *Anopheles stephensi*, *Aedes aegypti*, *Aedes geniculatus*, *Simulium ornatum*, *Culicoides* spp. or *Ceratophyllus gallinae*. These studies are continuing.

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References

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Appendix – Scientific names of birds mentioned in the text.

Mallard *Anas p. platyrhynchos*
Teal *Anas crecca*
Wigeon *Anas penelope*
Pintail *Anas a. acuta*
Shoveler *Anas clypeata*
Garganey *Anas querquedula*
Mandarin Duck *Aix galericulata*
Scaup *Aythya m. marila*
Pochard *Aythya ferina*
Tufted Duck *Aythya fuligula*
Goldeneye *Bucephala c. clangula*
Long-tailed Duck *Clangula hyemalis*
Common Scoter *Melanitta n. nigra*
Shelduck *Tadorna tadorna*
Red-breasted Merganser *Mergus s. serrator*
Smew *Mergus albellus*
Eider *Somateria m. mollissima*
Greylag Goose *Anser a. anser*
White-fronted Goose *Anser a. albifrons*
Canada Goose *Branta canadensis*
Brent Goose *Branta b. bernicla*
Mute Swan *Cygnus olor*
Bewick's Swan *Cygnus columbianus bewickii*